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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/535,681	05/19/2005	Masahiro Yoshioka	UNIU79.050APC	8149

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EXAMINER

CHAU, LINDA N

ART UNIT	PAPER NUMBER
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4162

NOTIFICATION DATE	DELIVERY MODE
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07/09/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/535,681	Applicant(s) YOSHIOKA ET AL.	
	Examiner LINDA CHAU	Art Unit 4162	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/13/05; 5/19/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1 -19 are rejected under 35 U.S.C. 103(a) as being obvious over Miyatake et al (US 6,773,121).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the

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application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Regarding claim 1, Miyatake teaches a curing resin composition containing a siloxane oligomer having an average molecular weight of 900 to 1000 in terms of ethylene glycol (Col. 6, Lines 55-67), and a fluorine compound having a fluoroalkyl structure and a polysiloxane structure (Abstract). Although Miyatake doesn't specifically say the molecular weight of polystyrene, it would have been obvious to one of ordinary skill in the art at the time of the invention to expect to have the fluorine compound with the molecular weight of 5000 or more, since it is consistent with the material taught by the applicants.

Regarding claim 2, Miyatake teaches that the fluorine atom content in the curing resin composition have a 1 to 20 parts by weight grade to resin 100 parts by weight, which thus have a resin composition of 20 wt%. (Col. 6, Lines 19-22).

Regarding claims 3 and 11, Miyatake teaches composition containing a crosslinking compound (Col. 6, Lines 1-9).

Regarding claims 4 and 12-14, Miyatake teaches curing resin composition containing an acid generating agent (Col. 7, Lines 27-38).

Regarding claim 5, Miyatake teaches a cured film obtained by curing a curing resin composition (Abstract).

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Regarding claim 6, Miyatake doesn't specifically teach a cured film having a Si/F peak intensity ratio of 0.4-2 but does teaches the materials of Si(OR)₄ and fluorine (Abstract and Col. 1, Lines 49-52). It would have been obvious to one of ordinary skill in the art at the time of the invention to expect the peak intensity to be similar, since it is consistent with the material taught by the applicants.

Regarding claim 7, Miyatake teaches an antireflection film comprising a hard coat layer formed on one surface of transparent substrate directly and an antireflection layer laminated on a surface of the hard coat layer, wherein the antireflection layer is constituted of a cured film (Col. 2, Lines 37-42 and Fig. 2).

Regarding claim 8, Miyatake teaches that the surface of the hard coat layer has irregularity of protrusion and depressions combined and an antiglareness (Col. 3, Lines 46-48).

Regarding claim 9, Miyatake teaches an optical element in which the antireflection film concerned is prepared (Col. 2, Lines 24-26).

Regarding claim 10, Miyatake teaches an image display to which an antireflection film or the optical element is mounted (Col. 1, Lines 7-14).

Regarding claims 15 and 18, Miyatake teaches a curing resin composition containing a siloxane oligomer having an average molecular weight of 900 to 1000 in terms of ethylene glycol (Col. 6, Lines 55-67), and a fluorine compound having a fluoroalkyl structure and a polysiloxane structure (Abstract). Although Miyatake doesn't specifically teach the solid weight ratio, it would have been obvious to one of ordinary skill in the art at the time of the invention to expect weight ratio to be similar, since it is consistent with the material taught by the applicants.

Furthermore, Miyatake teaches that the composition is being curable by UV irradiation (Col.5, Lines 21-24).

Regarding claims 16 and 19, Miyatake teaches a substrate with an epoxy type polymer (Col. 4, Lines 61-62).

Regarding claim 17, Miyatake teaches composition containing a crosslinking compound, melamines, to be 1 to 20 parts by weight grade, and more preferable to be 5 to 15 parts by weight to resin 100 parts by weight (Col. 6, Lines 4-21).

Claim 1-6 and 11-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakada et al (US 6,472,012), in view of Nishida et al (Pub. No.: 2002/0127408), and further view of Miyatake et al (US 6,773,121).

Regarding claims 1-2, Nakada teaches an antireflection film containing a silicon compound, which is a basis of siloxane, and ethylene glycol monomethyl ether (Abstract and Col. 4, Lines 21-25). Nakada doesn't teach that the composition contains siloxane oligomer with a molecular weight of 500-10000 in terms of ethylene glycol. Nishida teaches an antireflective film having a layer made of silicone resin, which is an oligomeric siloxane [0024]. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a siloxane oligomer as taught by Nishida to in the antireflection film of Nakada, since it is a known material to enhance the low refractive index layer of an antireflection film [0024]. Furthermore, since Nakada teaches that the content of the alcohol is preferably from 0.5 to 100 mol per mol of the alkoxy groups contained in the silicon compounds, it would have been obvious to one of ordinary skill in the art at the time of the invention to have a molecular weight of at least 500 in

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terms of ethylene glycol monomethyl ether. (Col. 4, Lines 34-37). Nakada further teaches that it is optimal to be in that range, since polysiloxane and the coating film having high hardness from the liquid containing the polysiloxane would form easily (Col. 4, Lines 37-40). In addition, Miyatake teaches a curing resin composition containing a siloxane oligomer having an average molecular weight of 900 to 1000 in terms of ethylene glycol (Col. 6, Lines 55-67). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the molecular weight as taught by Miyatake to enhance the antireflective film properties of Nakada.

Nakada teaches that the silicon compound (B) contains fluorine atoms and is obtained from a polysiloxane solution employing a fluoroalkylsilane (Col. 4, Lines 4-20). Nakada doesn't teach that the molecular weight of fluorine compound is of 5000 or more in terms of polystyrene or that the fluorine atom content is more than 20 wt%. However, Nakada teach that the silicon compound (B) has a formula (4), where the integer is from 0 to 12 (Col. 4, Lines 4-20) and that the content of the silicon compound (B) is from 0.05 to 4.5 mol per mol of the silicon compound (A) (Col. 4, Lines 28-29). It would have been obvious to one of ordinary skill in the art at the time of the invention to have a molecular weight of at least 5000 and have a fluorine atom content be more than 20 wt%, since Nakada teaches that it is optimal to be in that range for refractive index and to obtain a uniform solution. In addition, it would have been obvious to one of ordinary skill in the art at the time of the invention to have a molecular weight of at least 5000, since Nakada teaches a fluorine compound having a fluoroalkyl and polysiloxane structure, which it is consistent with the material taught by the applicants.

Regarding claims 3 and 11, Nakada teaches a glycol crosslinking compound (Col. 4, Lines 15-20).

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Regarding claims 4 and 12-14, Nakada teaches an acid generating agent of oxalic acid (Col. 4, Lines 45-53).

Regarding claim 5, Nakada teaches a cured film obtained by curing a curing resin composition (Col. 2, Lines 34-37).

Regarding claim 6, Nakada doesn't teach a ratio of a peak intensity of a silicon atom to peak intensity of a fluorine atom. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to expect the ratio of the peak intensity to be similar, since Nakada is consistent with the materials taught by the applicants.

Regarding claims 15 and 18, (A) and some of (B) are explained above. Nakada doesn't teach the solid weight ratio, however Nakada does teach that the silicon compound (B) has a formula (4), where the integer is from 0 to 12 (Col. 4, Lines 4-20) and that the content of the silicon compound (B) is from 0.05 to 4.5 mol per mol of the silicon compound (A) (Col. 4, Lines 28-29). It would have been obvious to one of ordinary skill in the art at the time of the invention to have the fluorine compound with the solid weight ratio of 0.05-9, since similar compounds are used. Furthermore, Nakada teaches that the composition is curable by heat (Col. 5, Lines 13-16; Col. 5, Lines 25-27).

Regarding claims 16 and 19, Nakada teaches that R^4 of formula (4) is an alkyl group (Col. 4, Lines 4-14). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide an unsubstituted alkyl group, such as hydroxymethyl, so that the fluorine compound can contain a hydroxyl group to react with the siloxane oligomer or the polysiloxane structure in the fluorine compound.

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Regarding claim 17, Nakada teaches that the crosslinking agent is from 0.5 to 100 mol, preferably from 1 to 50 mol, per mol of the total alkoxy groups contained in the silicon compounds (Col. 4, Lines 34-37), but does not teach that the agent is an amount of 70 parts or less by weight with respect to the fluorine compound. It would have been obvious to one of ordinary skill in the art at the time of the invention to have the agent no greater than 70 parts by weight, since the compound is not less than 0.5 per mol of the alkoxy groups and that having less would take a long time to form the polysiloxane (Col. 4, Lines 37-38). Furthermore, discovering the workable ranges involves only routine skill in the art.

Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakada et al (US 6,472,012) in view of Nishida et al (Pub. No.: 2002/0127408), in view of Miyatake et al (US 6,773,121), and in further view of Taruishi et al. (US 6,572,973).

Regarding claims 7-8, Nakada teaches an antireflection film comprising a multi-layer film prepared by laminating thin films on the transparent substrate (Col. 1, Lines 16-22). Nakada doesn't specifically teach a hard coat layer in the antireflection film. Taruishi teaches an antiglare layer made of the hard-coat material containing filler (Col. 9, Lines 32-35). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a hard coat layer as taught by Taruishi in the antireflection film of Nakada to provide enhanced antiglare and antireflective property. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide protrusions and depressions on the hard coat layer, since Taruishi teaches fillers, where the fillers can cause irregularities on the layer, which therefore enhance the antiglare properties.

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Regarding claim 9, Nakada teaches an optical element on one surface of an antireflective film (Abstract).

Regarding claim 10, Nakada teaches an image display to which an antireflection film or the optical element is mounted (Abstract).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LINDA CHAU whose telephone number is (571)270-5835. The examiner can normally be reached on Monday-Thursday, 12:00-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LNC

/Jennifer McNeil/

Supervisory Patent Examiner, Art Unit 4162